Assignment 3-1 Polynomial Addition 1

You are given two polynomials $f(x)$ and $g(x)$ with integer coefficients. In this problem you'll have to find out the sum $f(x) + g(x)$ of $f(x)$ and $g(x)$. For the sake of convenience, we define the zero polynomial as $0x^0$.

Input

The input consists of t ($30 \le t \le 40$) test cases. The first line of the input contains only positive integer t. Then t test cases follow. Each test case consists of two lines which give the two polynomials $f(x)$ and $g(x)$. The polynomials are represented by first an integer d ($0 \le d \le 100$) which represents the degree of the polynomial, followed by $d+1$ integers (in the range $[-2^{30}, 2^{30} - 1]$) representing the coefficients of the polynomial. The coefficients are in decreasing order of exponent, and the leading coefficient is not 0. You may assume that neither $f(x)$ nor $g(x)$ is the zero polynomial.

Output

For each test case, you are to output a single line containing $f(x) + g(x)$, in the same format as the input. Note that if $f(x) + g(x)$ is the zero polynomial, the output should be '0 0'.

Sample Input

```
2
3 1 -2 0 -4
0 4
3 -1 -2 0 4
3 1 2 1 -7
```

Sample Output

```
3 1 -2 0 0
1 1 -3
```

Suggested data structure

In your program, it is suggested that a polynomial $a_n x^n + a_{n-1}x^{n-1} + \cdots + a_2 x^2 + a_1 x + a_0$ is represented by the following array:

n	$n-1$	$\cdots$	2	1	0
a_n	a_{n-1}	$\cdots$	a_2	a_1	a_0

That means the coefficient of the x^k term is stored in location k of the array. For example, the polynomial $-x^3 - 2x^2 + 4$ is represented by the following array:

3	2	1	0
−1	−2	0	4

Note that the coefficients can be 0.

Suggested part of the program

You are suggested to write the function `addition` to complete the following program which solves this problem. It is also suggested that you don't declare arrays (or vectors) in the function `addition`, and don't declare global variables (including global arrays) except `arraySize`.

```
// Polynomial addition
#include <iostream>
using namespace std;

const int arraySize = 101;

// sum = addend + adder provided that
// neither addend nor adder is the zero polynomial
void addition( int addend[], int adder[], int sum[],
   int addendDegree, int adderDegree, int &sumDegree );

int main()
{
   int T;
   cin >> T;
   for( int t = 0; t < T; t++ )
   {
      int addend[ arraySize ];
      int addendDegree;
      cin >> addendDegree;
      for( int i = addendDegree; i >= 0; i-- )
         cin >> addend[ i ];

      int adder[ arraySize ];
      int adderDegree;
      cin >> adderDegree;
      for( int i = adderDegree; i >= 0; i-- )
         cin >> adder[ i ];

      int sum[ arraySize ];
      int sumDegree;
      addition( addend, adder, sum,
         addendDegree, adderDegree, sumDegree );

      cout << sumDegree;
      for( int i = sumDegree; i >= 0; i-- )
         cout << " " << sum[ i ];
      cout << endl;
   }
}

// sum = addend + adder provided that
// neither addend nor adder is the zero polynomial
void addition( int addend[], int adder[], int sum[],
   int addendDegree, int adderDegree, int &sumDegree )
{




}
```